



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,624	01/12/2001	Eunjoo Hwang	19570-04683	2391

22918 7590 07/01/2004

PERKINS COIE LLP  
P.O. BOX 2168  
MENLO PARK, CA 94026

EXAMINER

BOCURE, TESFALDET

ART UNIT	PAPER NUMBER
----------	--------------

2631

DATE MAILED: 07/01/2004

16

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/759,624

Applicant(s)

HWANG ET AL.

Examiner

Tesfaldet Bocure

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-11 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 6-8, 12-14 and 18-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4, 10, 14</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information Disclosure statements received on April 30, 2001 (paper #14), May 10, 2001 (paper #4) and June 11, 2002 have been accepted in-part for the following reasons: The cited reference US patent numbers 3,697,689 received on April 30, 2001 has been cited and considered on the IDS received on June 11, 2002 and the reference US patent numbers 4,995,031 received on June 11, 2002 has been cited and considered on the IDS received on May 10, 2001. Considering the above references will result in twice appearing once the patent is issued.

### *Drawings*

2. The Examiner has accepted the formal drawings received on January 12, 2001.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2,4,5,9-11 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by **Takotari et al.** (International Application Number WO 98/39873).

**Takotari et al.** (**Takotari** hereinafter) teaches a timing recovering circuit (fig.3) for recovering the timing to sample the received signal comprising: a sampler (310) for

Art Unit: 2631

sampling the received signal using clock signal (312); an equalizer (320) receiving the sampled signal (see output from A/D converter and AGC) having a precursor output inputted to the phase detector 332 and phase scanner 340 and decision feedback equalizer (DFE) having a post cursor equalized output inputted to the phase detector 332 and phase scanner 340; and the phase detector 332, phase scanner 340 and adder for generating phase error as in claims 1 and 9.

Further to claim 15 **Takotari** teaches a sampler (310) for sampling the received signal using clock signal (312); an equalizer (320) receiving the sampled signal (see output from A/D converter and AGC) having a precursor output (see input to the phase detector 332 and phase scanner 340) and decision feedback equalizer having a post cursor equalized output inputted to the phase detector 332 and phase scanner 340; and the phase detector 332, phase scanner 340 and adder for generating phase error. The feed forward equalizer 321 and 322 outputting two outputs 339 and 338 to the phase detector 338 and scanner 339. the DFE (claimed FBF) having two outputs; one inputted to the subtractor 324 and the second (claimed third output) inputted to the phase detector 338 and 339; and the decision circuit outputted to the first input of the DFE as in claims 5 and 11.

Further to claims 2 and 16, **Takotari** also teaches that the timing recovery circuit having loop filter 334 and VCO 336.

Further to claims 4 and 10, **Takotari** also teaches the outputs of the DFE and FFE having a weighting coefficients (see coefficients inputted to the phase detector and

scanner) corresponding to the pre and post cursor output signal inputted to the phase detector and phase scanner.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over **Takotari** (International Application Number WO 98/39873).

**Takotari** teaches the claimed subject matters in claims 1 and 15 as indicated above in the 4<sup>th</sup> paragraph.

**Takotari** teaches the clock generator 336 VCO for generating a clock signal as input to the sampler 321. He fails to teach is NCO as in claims 3 and 17. However such

Art Unit: 2631

a Numerically Controlled Oscillator is widely used in a digitally controlled phase locking and Examiner is taking official notice. Therefore, it would have been obvious to one of an ordinary skill in the art to replace the VCO of Takotari by an NCO in order to digitally control the clock of the sampler at the time the invention was made.

***Allowable Subject Matter***

8. Claims 6-8,12-14 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the claimed subject matter in claims 6-8,12-14 and 18-20 are allowable because the arts or record fail to teach or fairly suggest the claimed "wherein deriving a signal representative of a timing error comprises: using a timing error detector (120) having timing function means for providing at the output a signal representative of the timing error, the timing function means operative to provide a signal according to the timing equations claimed in claims 6-8 ,12-14 and 18-20, and as shown in figures 7-10."

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent numbers 6,249,557 and 6,414,990 issued to Takatori

Art Unit: 2631

et al. and Jansson et al. respectively disclose a timing recovery circuit having sampler, DFE and FFE.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (703) 305-4735. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (703) 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure  
Primary Examiner  
Art Unit 2631

